to Bulovic on page 2 of the present Office Action was a typographical error, and that in fact the comments in the first bulleted paragraph on page 2 is directed to Celii, not Bulovic.

Claims 1-10 and 12-24 are pending. Claim 1 has been amended to more particularly point out the present invention. Claim 11 has been cancelled without prejudice. No new matter has been added.

Claims 1-12, 14-17, and 20-23 are rejected under 35 U.S.C. 103(a) over Celii et al. (US 6,274,979) in view of Lu et al. (US 5,764,324) and Pichler (WO 98/10621). In addition, Claims 13, 18-19 and 24 are rejected under 35 USC 103(a) over Celii et al. modified by Pichler and further in view of Gu et al. (US 5,844,363). The rejection to Claim 11 is now moot. Applicants traverse the rejection to Claims 1-10, 12, 14-17, and 20-23 and to Claims 13, 18-19 and 24.

**I. Celii et al.**

Applicants submit that (A) Celii is not analogous art with the present invention; (B) Celii does not teach nor suggest a metal etalon microcavity structure; and (C) Celli does not teach nor suggest a semi-transparent layer having a reflectivity of at least 86%.

**A. Celii et al. is nonanalogous art because it fails to describe a metal etalon microcavity structure.**

Celii does not describe a metal etalon microcavity. One of ordinary skill in the art reading Celii would understand that in fact, the structure at Figure 11 of Celii is a distributed bragg reflector microcavity structure ("DBR structure"). *See*, for example, Figure 2 of the attached Dodabalapur reference (1996) (**Attachment 2**), which is the device shown in Figure 11 of Celii, minus the LiF layers that are part of the Celii invention. The Dodabalapur reference confirms that this structure is a quarter-wave stack (QWS) structure, consisting of alternate layers of $Si_xN_y$ and $SiO_2$. As discussed in the present Specification, such a structure is a type of DBR structure (*see* page 4, lines 10-11). As further described in the present Specification, it has been generally accepted that DBR structures are more desirable microcavity structures than

metal etalon microcavities because in the DBR structure fewer photons are lost by absorption in the cavity *(see, for example,* Page 5 line 1 et seq. of the Specification). As such, DBR and metal etalon microcavities are not regarded as analogous art to one of ordinary skill. Therefore, since Celii describes a DBR structure, it cannot be used to as a reference to reject the present invention.

**B. Celii fails to teach nor suggest a metal etalon microcavity structure.**

As discussed above in (I)(A) above, the present invention is unexpected because one of ordinary skill in the art considers metal etalon microcavity structure undesirable. Therefore, not only does Celii fail teach metal etalon microcavity structure, it also fails to suggest the present invention.

**C. Celii fails to teach nor suggest a high reflectivity semi-transparent layer having a reflectivity of at least 86%.**

Celii does not teach the reflectivity value of the dielectric reflector shown in Figure 11. Moreover, the description at page 6956 col. 1. line 4 of the Dodabalpur reference confirms that the structure described in Celii contains a dielectric mirror that has "a peak reflectivity of ≈80%." Therefore, Celii does not teach nor suggest a semi-transparent layer with a reflectivity of at least 86%.

Moreover, looking to the reflectivity value of Celii reference would require inappropriate hindsight, since, as discussed above, Celii is nonanalogous art and does not teach nor suggest a metal etalon microcavitity structure.

**II. Combined teaching of Celii et al., Lu et al. and Pichler do not suggest the invention.**

Neither of Lu nor Pichler, either alone or in combination with each other and with Celii teach nor suggest a metal etalon microcavitity structure, nor a semi-transparent layer with a reflectivity of at least 86%. Therefore, even with the inappropriate combination of Celii, Lu and Pichler, the combined teachings do not suggest a metal etalon microcavitity

structure, nor a semi-transparent layer with a reflectivity of at least 86%.

On page 3 of the Office Action, the Examiner asserts that "it is common in the art to use thin metal layer such as silver as a semi-transparent or transparent electrode. Therefore it is obvious to provide a semi-transparent metal and metal alloy anode in order to transmit light through the layer." Applicants submit that it is NOT common to one of ordinary skill in the art to use silver in the anode - - none of the references teach nor suggest having silver in the anode.

On page 3 of the Office Action, the Examiner asserts that "temperature, power, time, thickness and reflectivity are considered to involve routine optimization." However, Applicants submit that power and reflectivity are not a matter of routine optimization to one of ordinary skill in the art. In a complex system involving many layers of different materials such as the present structure, changing the reflectivity of one layer greatly affects the electro-optic properties of the entire system. Moreover, as discussed above, one of ordinary skill in the art is not motivated to provide a high reflectivity layer in the anode and thereby create a metal etalon microcavity structure, because it has been known that metal etalon microcavities are undesirable.

Therefore, Applicants respectfully request withdrawal of the rejection to Claims 1-10, 12, 14-17, and 20-23.

**III. Combined teaching of Celii et al., Pichler and Gu et al. do not suggest the invention.**

Similarly, Gu, either alone or in combination with Celii and Pichler, neither teaches nor suggests a metal etalon microcavitity structure, nor a semi-transparent layer with a reflectivity of at least 86%. Therefore, even with the inappropriate combination of Celii, Pichler and Gu, the combined teachings do not suggest a metal etalon microcavitity structure, nor a semi-transparent layer with a reflectivity of at least 86%. Therefore, Applicants respectfully request withdrawal of Claims 13, 18-19 and 24.

In view of the foregoing, allowance of the above-referenced application is respectfully requested. A Petition for one-month extension of time is submitted herewith.

Respectfully submitted,

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Enclosures:
Attachment 1: Version With Markings to Show Changes Made to the Specification;

Attachment 2: Dodabalapur et al., "Physics and applications of organic microcavity light emitting diodes," *J. Appl. Phys.* 80 (12), 6954-6964 (15 Dec. 1996).

**ATTACHMENT 1:**
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In showing the changes, deleted material is shown as brackets, and inserted material is shown underline.

**IN THE CLAIMS:**

1. (Amended) A light-emitting device comprising:

an anode comprising a semi-transparent layer having a high reflectivity and a high work function, wherein the semi-transparent layer has a reflectivity of at least 86%; and

a cathode comprising at least one first cathode layer of a low work function material selected from metal, metal oxide and combinations thereof, and at least one second cathode layer having a high reflectivity and a high work function,

wherein said device is a metal etalon microcavity structure.

**ATTACHMENT 2:**

Dodabalapur et al., "Physics and applications of organic microcavity light emitting diodes," *J. Appl. Phys.* 80 (12), 6954-6964 (15 Dec. 1996).